

REMARKS

This application, as amended herein, contains claims 1, 3 - 9, and 11 - 27, and newly added claims 28 and 29. Claims 2 and 10 have been canceled, and their recitations included in claim 1.

Claim 18 has been amended in accordance with the helpful suggestion of the Examiner. The Applicants and the undersigned thank the Examiner for the allowance of claims 26-27. In view of the indication of allowability of claims 18-25, and the amendment to claim 18 to correct a typographical error, claims 18-25 are now in a condition for allowance.

Claims 1-17 were rejected under 35 U.S.C. 103 as being obvious over a combination of up to nine references in five categories of prior art. It is respectfully submitted that claim 1, as amended herein, now patentably defines over all of the prior art of record, whether taken alone or in combination.

Claim 1 is directed to a first array of ultrasonic transducer elements and to a second array of ultrasonic transducer elements extending along an outer surface of an elongate structure in a direction generally parallel to its longitudinal axis. A third array of ultrasonic transducer elements extends about the elongate structure in a direction so that it images a plane perpendicular to that imaged by the first array and the second array. The third

array is disposed in a space between the first array and the second array.

Claim 1 has been amended herein to recite that the first array, the second array and the third array are outwardly convex arrays, and that the first array and the second array are aligned so as to image a portion of a substantially continuous plane perpendicular to the plane imaged by the third array. None of the prior art teaches or suggests this approach.

Claim 1 has a unique advantage over the closest prior art, which appears to be, for example, Fig. 36 of U.S. Patent No. 5,471,998 to Fujio et al. In Fujio et al. the arrays extending longitudinally along the transducer are concave. This actually teaches away from Applicants' invention in that it appears to be the goal of Fujio et al. to concentrate on a relatively small region of interest. In other words, the concave arrays tend to focus the ultrasound on a rather small region of interest.

In sharp contrast to Fujio et al., Applicants' invention, as set forth in claim 1, lines up two convex transducer arrays to provide beam coverage over an entire, continuous plane parallel to the axis of the probe. Another transducer array is placed between these two transducer arrays, to image a plane perpendicular to the continuous plane imaged by the first two arrays (Please see Applicants' Fig. 6). The resulting combination of elements has a unique advantage in allowing imaging of an entire organ, such as the prostate, with one probe, in both longitudinal and transverse planes, as noted in the

specification at page 3, lines 21 - 24. Further as noted in the specification at page 4, lines 6 - 10, at page 5, lines 2 - 5, and at page 12, lines 3 - 20, the configuration of the probe allows an entire prostate to be imaged along a longitudinal plane, and a transverse plane, advantageously at the center of the prostate, may also be imaged, all without moving the probe. This has extremely significant advantages in allowing accurate surgery, because the prostate is not moved significantly due to extensive re-positioning of the probe.

None of the prior art teaches or suggests Applicants' invention, as set forth in claim 1, and surely does not teach any apparatus having these advantages. It is thus submitted that claim 1 is directed to patentable subject matter.

The remaining original claims depend from independent claim 1. These claims have further recitations, which in combination with those of claim 1, are not taught or suggested in the prior art. For the reasons set forth above with respect to claim 1, it is submitted that original claims depending from claim 1, are directed to patentable subject matter.

Newly added claim 28 states that the first array and the second array have scanning planes which are co-planar and partially overlap. Newly added claim 29 states that the scanning planes of the first array and of the second array are configured to allow an entire prostate to be imaged along a single longitudinal plane without moving the

probe. These claims, which depend from claim 1, more specifically state the advantages of the structure of claim 1. The portions of the specification mentioned above clearly provide support for these amendments.

For the reasons set forth above with respect to claim 1, and in view of the specific recitations in claims 28 and 29, it is submitted that claims 28 and 29 are also directed to patentable subject matter.

In view of the allowable nature of the subject matter of all of the claims, if the Examiner cannot issue an immediate allowance, it is respectfully requested that he contact the undersigned to resolve any remaining issues.

Formal drawings, as submitted in Applicants' corresponding PCT application, are being mailed under separate Drawing Transmittal.

Respectfully submitted,

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